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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,130	09/29/2005	Takahiro Kishioka	125473	4076

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EXAMINER

HAMILTON, CYNTHIA

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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02/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,130	Applicant(s) KISHIOKA, TAKAHIRO	
	Examiner Cynthia Hamilton	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 November 2007 has been entered.

2. Claims 1-7 and 10-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants has not pointed out where the amended claims are supported, nor does there appear to be a written description of the claim limitation "triazine trione skeleton" found in the application as filed. See particularly MPEP 2163.04.

3. Claims 2 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Lees et al (5,380,804). The formulations of Example 3 Part A of Lees et al anticipate the instant coating compositions of claims 2 and 8. The compositions of Lees et al are inherently able to act as undercoating compositions or to be made into undercoating compositions thus being "forming" capable.

4. Applicant's arguments filed 19 November 2007 have been fully considered but they are not persuasive. Applicants argue because Lees does not disclose the intended use of their compounds as anti-reflective coatings then there is no suggestion that the compounds of Lees are in every case a coating and that because in col. 1, lines 43-53 of Lees disclose properties such as

high gloss then there is not issue of inherent properties. The examiner disagrees with applicants' interpretation of the Lees rejection. Lees et al with respect to the formulations of Example 3, part A anticipate the instant composition because both the instant compositions and the composition of Lees et al have the same components and thus inherently have the ability to form a composition which will be coatable and antireflective. The issue of anticipation is specific to one species of composition in Lees et al which is reproduced below:

EXAMPLE 3

Part A

Formulations 1 to 17 were prepared using glycidyl methacrylate (GMA) copolymers, and 1,3,5-tris-(2-carboxyethyl)isocyanurate (TCI) crosslinker and a cure catalyst as follows:

A 50 weight percent solution of the GMA copolymer, the TCI crosslinker, and the catalyst in N,N-dimethylformamide (DMF) was prepared and applied to Bonderite® 1000 panels using a #32 wire cator applicator. (Bonderite® is a registered trademark of Parker Chemical Company for phosphated cold rolled steel (CRS). "Iron phosphated CRS" is equivalent to "Bonderite 1000".) After drying at room temperature for a few minutes, the coated panels were placed horizontally in a mechanical forced stream convection oven at a specified temperature/time cure cycle. After curing the panels, the physical and resistance properties of the resulting coatings were measured.

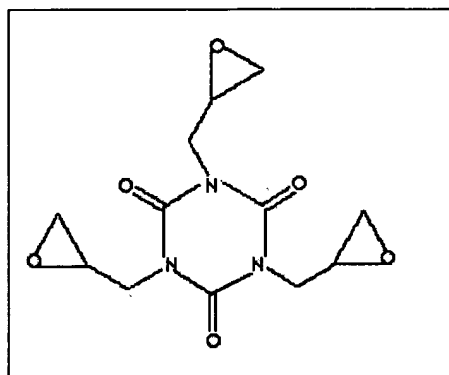
It is

the composition of glycidylmethacrylate copolymer and 1,3,5-tris-(2-carboxyethyl)isocyanurate

and cure catalyst which anticipates the instant composition comprised of a polymer compound having an epoxy group and a compound having a carboxyl group, a triazine trione skeleton and a molecular weight of 2000 or less. The issue is whether the composition of this one example of Lees et al inherently has the ability to act as such a coating, not whether Lees et al recognizes that ability. Mere recitation of newly discovered function or property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art; Patent Office can required applicant to prove that subject matter shown to be in prior art does not possess characteristic relied on where it has reason to believe that functional limitation asserted to be critical for establishing novelty in claimed subject matter may be inherent characteristic of prior art; this burden of proof is applicable to product and process claims reasonably considered as possessing allegedly inherent characteristics. In re Best, Bolton and Shaw (CCPA) 195 USPQ 430. The rejection stands.

5. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishioka et al (either as US 2004/0110096 A1 or as WO 02/086624 A1 as evidenced by US 2004/0110096 A1). WO 02/086624 A1 has a publication date of October 31, 2002 and the National stage of this document, i.e. US 2004/0110096 A1, has a publication date of June 10, 2004. There is no date applicable under 35 USC 102 (e) with respect to these documents. Thus, the dates of concern are the publication dates alone. Since US 2004/0110096 A1 is the National stage of the PCT application of WO 02/086624 A1, US 2004/0110096 A1 is taken as an English translation of WO 02/086624 A1 and is used as such here as to evidence the content of WO 02/086624 A1. All citations are to the content of US 2004/0110096 A1. With respect to instant claims 3 and 9, Kishioka et al teach the instant invention with the exception of a specific working example

wherein a triglycidyl isocyanurate compound is mixed with a polymer having either a phenolic hydroxy group or a carboxylic acid group. Kishioka et al teach the use of mixtures of their formula (1) with a resin in [0035]. One example of formula (1) is as described in [0026] as the epoxy derivative with R¹, R² and R³ being glycidyl. This is the structure as follows:

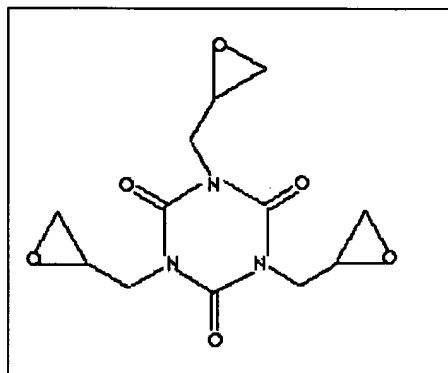


and is known as triglycidyl isocyanurate in the art. The resins used to mix with the formula (1) compounds are set forth in [0043] in Kishioka et al and are inclusive of polyhydroxystyrene, i.e. polyvinylphenol, polymaleic acid, polyacrylic acid and polymethacrylic acid among others. With respect to instant claims 3 and 9, the mixing of any one of the formula (1) compounds with any of the resins given would have been prima facie obvious to form the compositions of Kishioka et al to be used for forming anti-reflective coatings for use in a lithographic process to obtain an antireflective layer with high reflection reducing effect and does not cause intermixing with a resist layer to be used as set forth by Kishioka et al in their Abstract. The simple substitution of one known element for another to obtain predictable results of an antireflective layer as taught by Kishioka et al is held obvious in the art.

6. Applicant's arguments filed 19 November 2007 have been fully considered but they are not persuasive. Applicants argue that a triglycidyl isocyanurate containing polymer with another polymer having phenolic hydroxyl groups "mere conjecture and speculation as to whether one of

ordinary skill in the art would" so combine in vie of Kishioka et al. The rejection is not to compositions of two different polymers but to a compound with molecular weight of 2000 or less having at least two epoxy groups and a polymer compound having a phenolic hydroxyl group, carboxyl group, a protected carboxyl group or an acid anhydride structure wherein one or the other has a triazine trione skeleton present. Thus, applicants have not addressed the rejection made in their arguments. As to the basis for this assertion that such is obvious to combine to form the compositions of Kishioka et al, the mixture of such is taught, the examples for each part of the mixture are taught, thus the use of any of the components for each part of the mixture are held as obvious to try to obtain the predictable results set forth by Kishioka et al of an anti-reflective coating for use in the manufacture of a semiconductor device such that there is reduced intermixing with the resist layer and higher selectivity with respect to dry etching. The rejection stands.

7. Claims 3 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by DERWENT-ACC-NO: 1986-290577. With respect to instant claims 3 and 9, The composition of novolak resin and triglycidyl isocyanurate set forth by DERWENT-ACC-NO: 1986-290577 anticipates the instant composition and has the inherent capability to be an undercoating. Triglycidyl



isocyanurate is and has a molecular weight of less than 300

thus falling within the required 2000 or less. Novolak resins have phenolic hydroxyl groups.

8. Applicant's arguments filed 19 November 2007 have been fully considered but they are not persuasive. Applicants argue because the intended use of the compositions of DERWENT-ACC-NO: 1986-290577 are different than the intended use of the instant compositions that this is sufficient to remove the anticipation by DERWENT-ACC-NO: 1986-290577. The examiner believes it is not. The compositions of DERWENT-ACC-NO: 1986-290577 have all of the same compounds and thus are inherently useful in the manner required by applicants. Mere recitation of newly discovered function or property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art; Patent Office can required applicant to prove that subject matter shown to be in prior art does not possess characteristic relied on where it has reason to believe that functional limitation asserted to be critical for establishing novelty in claimed subject matter may be inherent characteristic of prior art; this burden of proof is applicable to product and process claims reasonably considered as possessing allegedly inherent characteristics. In re Best, Bolton and Shaw (CCPA) 195 USPQ 430.

9. Claims 3 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hitachi (JP 58-107312 A and attached English abstract. With respect to instant claims 3 and 9, The

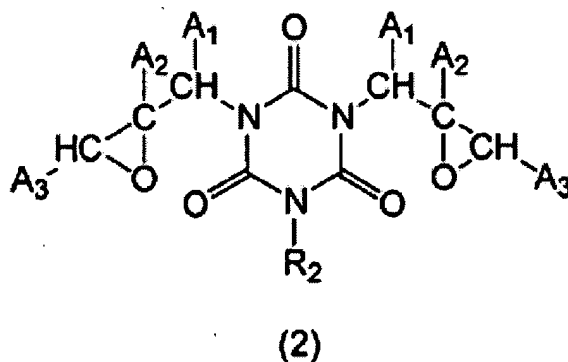
composition of novolak resin and triglycidyl isocyanurate set forth by Hitachi anticipates the instant composition and has the inherent capability to be an undercoating.

Applicant's arguments filed 19 November 2007 have been fully considered but they are not persuasive. Applicants argue that Hitachi does not teach the polymer arrangement as presently claimed. Claims 3 and 9 are reproduced below:

3. (Currently Amended) A resist underlayer anti-reflective coating forming composition ~~used in~~ for use in a lithography process of manufacture of a semiconductor device comprising a compound with a molecular weight of 2000 or less having at least two epoxy groups and a polymer compound having a phenolic hydroxyl group, a carboxyl group, a protected carboxyl group or an acid anhydride structure, wherein at least one of the compound and the polymer ~~compounds having compounds~~ has a triazine trione skeleton.

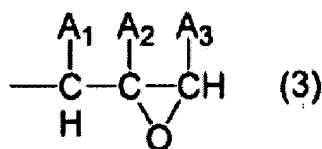
9. (Original) The underlayer coating forming composition according to claim 3, wherein the compound with a molecular weight of 2000 or less having at least two epoxy groups is a compound of formula (2)

Application No. 10/551,130



wherein A₁, A₂ and A₃ each are hydrogen atom, methyl group or ethyl group, R₂ is hydrogen atom, C₁₋₆ alkyl group, C₃₋₆ alkenyl group, benzyl group, phenyl group or a group of formula

(3)



There are the two components from instant claims 3 and 9 present. The examiner does not see how the addition of the intended use of the composition as a coated antireflective layer adds structure or other components to the claimed invention. IF the two components are present in both the prior art compositions and the claimed invention with no other requirement then the composition has to inherently have the needed properties to act in the fashion required.

Applicants have not make clear what is not present in the compositions of Hitachi that would not cause the compositions of Hitachi to be able to form an antireflective coating. The rejection stands. Mere recitation of newly discovered function or property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art; Patent Office can required applicant to prove that subject matter shown to be in prior art does not possess

characteristic relied on where it has reason to believe that functional limitation asserted to be critical for establishing novelty in claimed subject matter may be inherent characteristic of prior art; this burden of proof is applicable to product and process claims reasonably considered as possessing allegedly inherent characteristics. In re Best, Bolton and Shaw (CCPA) 195 USPQ 430.

10. Claims 3 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Harada et al (EP 1 203 792 A1) as set forth in Comparative Example B4. See particularly Table 14, page 38, page 36 [0200].

11. Applicant's arguments filed 19 November 2007 have been fully considered but they are not persuasive. Applicants argue that the compounds of Harada et al are not "particularly arranged as recited to accommodate anti-reflective properties". Applicants have not pointed out where this particular arrangement is in the claims as drawn. Mere recitation of newly discovered function or property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art; Patent Office can required applicant to prove that subject matter shown to be in prior art does not possess characteristic relied on where it has reason to believe that functional limitation asserted to be critical for establishing novelty in claimed subject matter may be inherent characteristic of prior art; this burden of proof is applicable to product and process claims reasonably considered as possessing allegedly inherent characteristics. In re Best, Bolton and Shaw (CCPA) 195 USPQ 430. The rejection stands.

12. Applicant's arguments filed 19 November 2007 have been fully considered but they are not persuasive. Applicants appear to be arguing that there is some arrangement imparted to the claimed compositions by the words "anti-reflective coating forming composition" that is not

inherent in the combining of the two components set forth. Applicants have not pointed to what arrangement that is, however. Applicants argue about higher dry etching rate and prevention of intermixing with photoresists. Neither is found as a claim limitation. Intermixing depends upon the photoresist selected and its inherent solubility nature thus, intended use does play into issues of intermixing properties. Applicants have not pointed to what in the prior art compositions would not meet these requirements. The examiner has no prior art rejections standing against claims 1, 4-7 and 10-14.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-1331.

The examiner can normally be reached on Monday through Friday 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571) 272-0729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Hamilton/
Primary Examiner, Art Unit 1795

Cynthia Hamilton
Primary Examiner
Art Unit 1795

31 January 2008